NetComm™

Broadband Solutions

NETWORK DOME CAMERA

NS4540

User's Manual

Your Eye Online, All the time.

NetComm™

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WARNING & CAUTION

Please read the manual before attempting installation or operation

Please be aware of the following:

1. Don't use any chemical detergent to clean the machine surface, use a damp cotton cloth only. Regularly clean the dome cover to assure the device lens can properly focus.
2. Please install the NETCOMM NS4540 in a dry area, water and high humidity may cause damage to internal parts. An external housing must be used for outdoor installation.
3. Please use parts supplied by the manufacturer only, any unqualified parts used in the equipment will void the warranty.
4. Avoid installing the equipment in an unstable area. Make sure the area is firm and stable. Falling equipment may injure personnel and damage the equipment.
5. Do not install the equipment near any flammable gas. This may cause fire and injury.
6. Avoid running video cable and signal cable in the vicinity or passing interference sources such as video waves, broadcast station, power generator, elevator motor or high voltage areas. This may cause interference with normal operation of the device.
7. Make sure the power cable is properly fixed. An unsecured cable may cause serious short circuit or fire.
8. Correct cable connection is important. Do not place any object on the connection cable and replace the cable if the cable is damaged. A faulty cable may cause a short circuit, fire or injury.
9. Make sure ground is well connected to avoid damage caused by lightning.
10. Do not put any foreign objects inside the equipment and do not spray any liquid on the equipment. This will avoid short circuit damage.
11. Do not touch power connection with wet hands to avoid short circuit or electric shock.
12. Do not apply excessive force on the equipment. Violation may cause damage.
13. Do not install the equipment in a location that may expose the equipment directly to sunlight. Violation may cause color fading or damage.
14. Do not install the equipment in high temperature or low temperature environment to avoid damage. The normal operational temperature is between -5 degrees~ +50 degrees.
15. NETCOMM NS4540 contains highly sensitive electric parts. Please allow repairs to be undertaken by NetComm.
16. Turn off the power immediately and contact the technician when the following occurs:

    A. Damage power cable or plug.

    B. Water leaks into the equipment.

    C. Equipment falls on ground or damage appears on the external case.

17. **Warning: Do not try to repair the equipment. Only a qualified technician may disassemble and repair the equipment. Shut off the power before disassembling the equipment and power up the unit unless the case is completely assembled.**

1. Introduction

1-1 What is the NETCOMM Network Dome Camera?

- The NETCOMM Network Dome Camera ("NETCOMM NS4540" here and after) is an Internet-based digital Network Speed Dome Camera with built in Pan/Tilt/Zoom and a CCD module to distribute compressed live video on to the Intranet/Internet via Ethernet connection.
- The NETCOMM NS4540 can be moved (Pan/Tilt/Zoom) changing the view point to get the best monitoring angle easily via standard browser such as Explore TM or Netscape TM.
- The NETCOMM NS4540 is a self-contained Web Server. Users can access the Network Dome Camera just like browsing a website over the Internet using standard browser such as Explore TM or Netscape TM , and perform management, configuration, and monitoring with the greatest of ease.
- The NETCOMM NS4540 contains an image compression chipset which is capable of delivering standard JPEG, MJPEG, real-time video on to a wired or wireless IP network.

1-2 Advantage Features

- 22X Auto Focus Lens (NETCOMM -261)
- Built-in 22X optical zoom lens with focal length 3.9~85.4mm
- Automatic/Manual Iris Control
- 360° continuous rotation
- Up to 128 programmable preset positions
- Preset positions auto scanning
- High speed rotation and tilt, speed range varies from 0.18°/sec~360°/sec
- 180° Horizontal Instant Flip
- 6 alarm inputs, 1 alarm output can be set as NO (normally open) or NC (normally close) for each NETCOMM NS4540

Two types of alarm response modes: Lock Mode, Release Mode

Built in 1/4" CCD high resolution DSP color camera:

- 22X optical lens models:
- 1.480 TV Lines high resolution
- 2.0.8 Lux high sensitivity

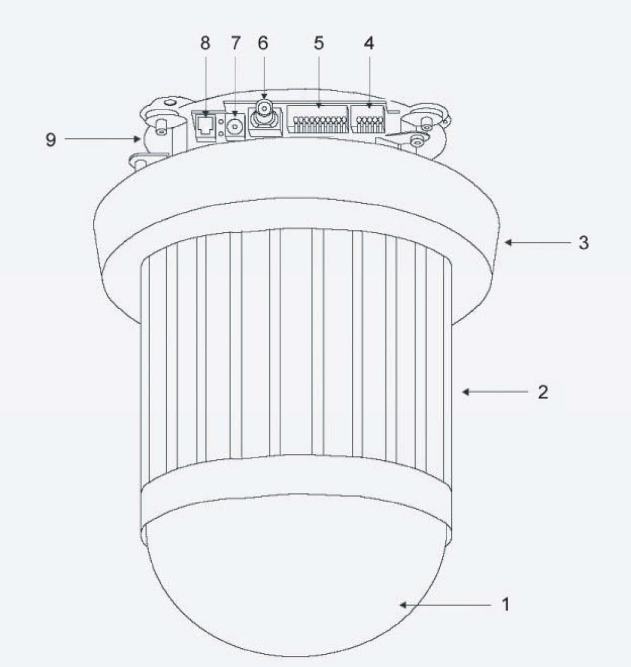
White Balance Control (Auto White Balance and Manual White Balance (Indoor/Outdoor))

- Back Light Compensation (ON/OFF)
- Auto Gain Control (ON/OFF)
- Rs-485 control interface
- Up to 64 NETCOMM NS4540 configurations
- Compatible with PC control (protocol required)
- 12V dc voltage input (power supply options: AC 90~260V or AC 24 V)
- Flexible Mounting: Indoor-embedded and attached types, Outdoor weather resistant housing

1-3 Package Contents

2. Hardware

2-1 Structural Elements



1. Dome Cover 2. Camera Case 3. Decoration Ring
4. RS-485 In/Out Jack 5. Alarm In / Out Jack 6. Video In / Out Jack
7. Power In Jack 8. Ethernet / Power / Status / Network LED 9. Camera Base

2-2 Connection Jack and Cable Requirement

- Power In Jack :

  DC12V Input Voltage, Power Consumption 1.2Adc, Center Pin 2.0mm Requires Cable: 18 AWG x 2C

- Video Out BNC Jack :

  Video Signal Output CVBS 1.0Vpp 75? BNC Recommend Data Cable:5C2V

- Alarm In/Out Jack :

  Each NETCOMM NS4540 contains 6 alarm inputs and 1 alarm output - Alarm Input Voltage 5.6V max, Output 0.5A 120Vac/ 1A 24Vdc - Recommend Data Cable: UL 26 AWG 80 C 300V UL 24 AWG 80 C 300V

- RS-485 In/ Out Jack :

  RS-485 Input (TXDI+, TXDI-) to receiver signal from keyboard, matrix, DVR or multi-plexer through twisted pair cable.

  RS-485 Output (TXDO+, TXDO-) sending out signal to next NETCOMM NS4540 through twisted pair cable.

- Recommend Data Cable:

  2547 VW-ISC UL 24 AWG x 2C - Transmission Distance: Max. 1 Kilometer

- When 24VAC PSU is used, the recommend cables are:

  UL SPT-1 VW-1 18AWG x 2C

  UL SPT-2 VW-1 18AWG x 2C

  UL SUT 105C VW-1 18AWG x 3C

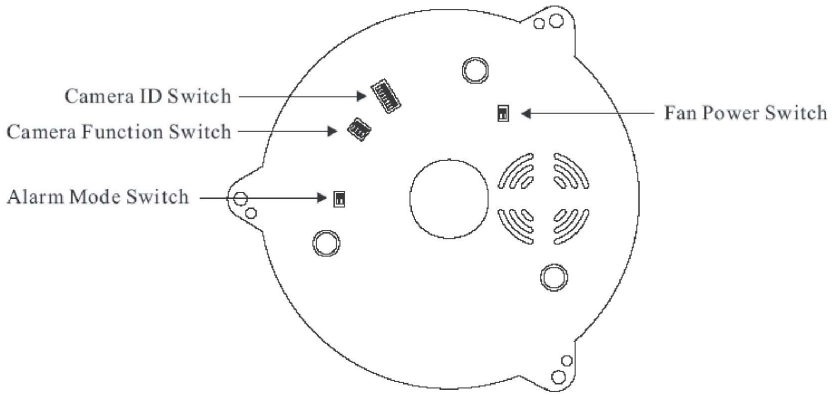
  The distance between 24Vac PSU and fast dome cannot exceed 200 meters.

- Ethernet: Standard IEEE802.3 10 Base T port
- POWER/STATUS LED:

  Power On: constant red. - Emergency factory default (appendix C): Blinking orange (i.e. red mix with green).
- NETWORK LED:

  Network Link (connected): Constant red. - Networks have activities: Blink red. - Data sent out from server: Blink green. - Network disconnected: Constant slow blinking green. - Upgrading software (appendix A): Constant slow to fast blinking of orange.

2-3 DIP Switch Setting



- Fan Power Switch

  Turn the number 2 switch to ON position to activate the internal fan. This will maintain the temperature inside.

- Alarm Mode Switch

  Alarm Mode can be set as Lock or Release mode. Turn number 1 switch to ON position to choose Release mode. Turn number 1 switch to OFF position to choose Lock mode.

  NETCOMM NS4540 has 6 alarm inputs and 1 output, which can be set either NC (normally close) or NO (normally open) mode. Turn number 2 switch to NO position to choose NC mode. Turn number 2 switch to OFF position to choose NO mode.

- Camera Function Switch

  22X optical lens models?

  Turn number 1 switch to ON position for AGC function

  Turn number 1 switch to ON position for BLC function

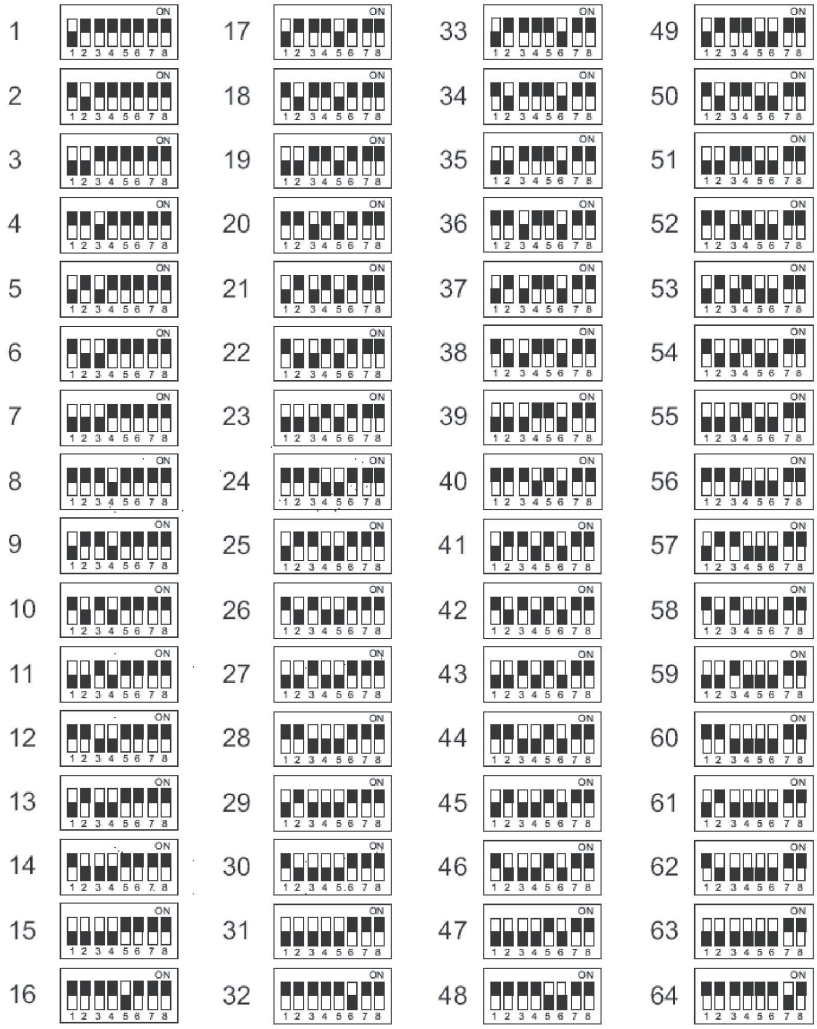
  Turn number 1 switch to ON position for AWB function

  Turn number 1 switch to OFF position for Manual White Balance (MWB)

  When NETCOMM NS4540 is set to MWB, turn number 4 switch to ON for Outdoor or to OFF for Indoor

2-4 NETCOMM NS4540 ID Address Setting Refer Chart

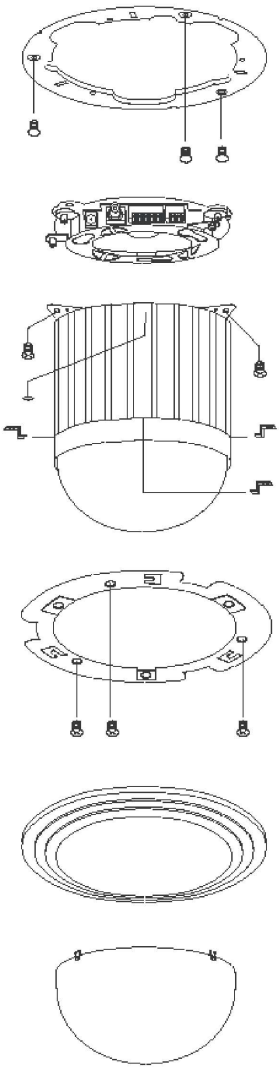
Up to 64 NETCOMM NS4540 can be serially linked in one system. Therefore each dome is addressed by ID switch located at the base of the NETCOMM NS4540. Below is the address settings for camera 1~64:



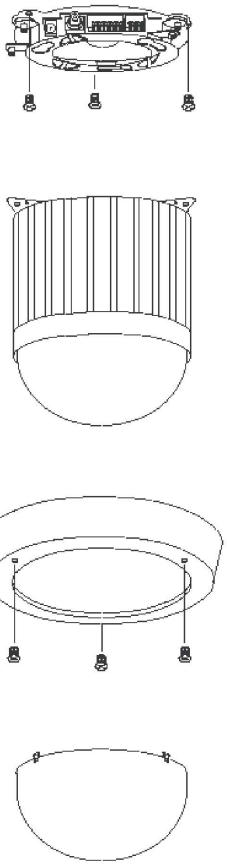
3. Installation

3-1 Indoor Installation Structural Drawing

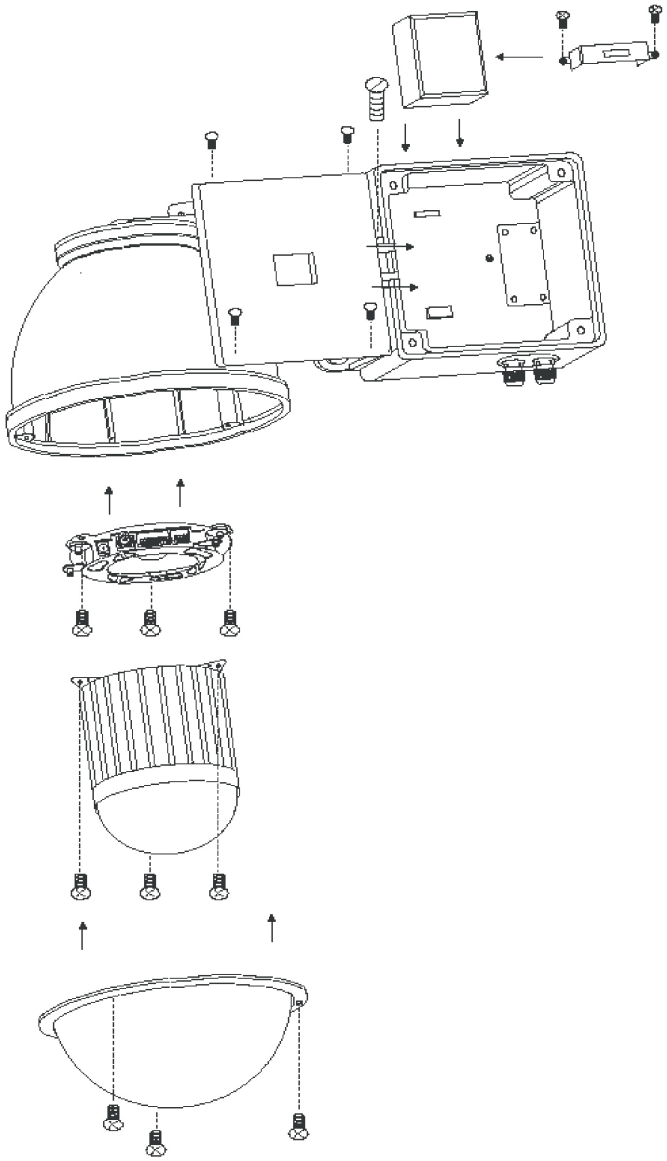
Embedded Mounting



Attached Mounting

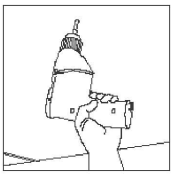
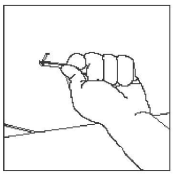
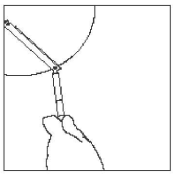
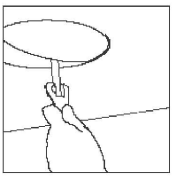


3-2 Outdoor Installation Structural Drawing (Pendant Mounting)



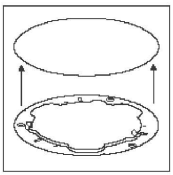
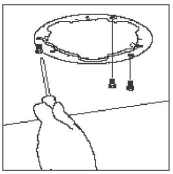
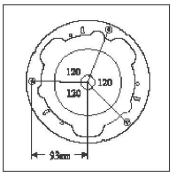
3-3 Embedded Mounting (False Ceiling)

Step 1 Ceiling Preparation

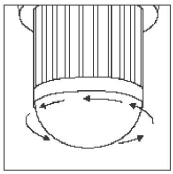
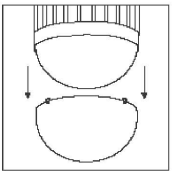
- Drill a 3/32" (2.4mm) hole at the center of the chosen area.
- Use a pencil and a compasses to mark a circle 6.7" (170mm) in diameter and cut the circle.

Step 2 The Ceiling Ring

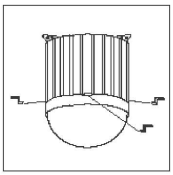
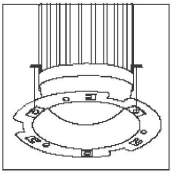
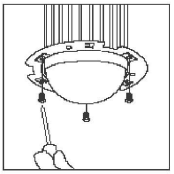




- Attach the ring to ceiling
- Tighten the three tapping screws into the ceiling or three machine screws with
- Ring size and screw location

Step 3 The Fix Ring

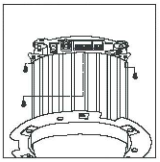
- Turn the dome cover anti-clockwise
- Separate the dome cover from camera

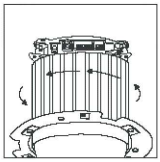
- Put on the three L shape screw nuts
- Attach fix ring with screw nuts
- Tighten the three black screws into the screw nuts

Note: After dome cover is attached, use glass-cleaning cloth to clean dome cover. An unclean dome cover may affect camera performance.

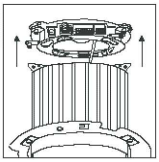
Step 4 Camera Setting



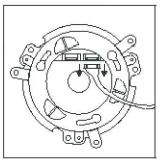
● Untighten the three screws from the base



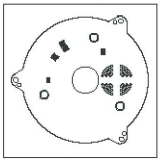
● Turn the camera body anti-clockwise



● Separate the camera body and base

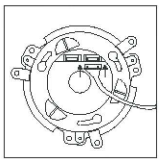


● Unplug the connection cable

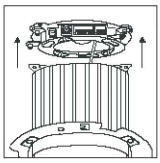


Setting Dome ID
Setting Alarm Mode
Setting Camera Function
Setting Fan Power

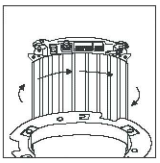
Step 5 Attach the Camera Body and Base



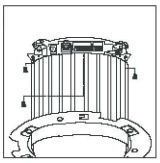
● Reconnect the connection cable



● Attach camera body to base

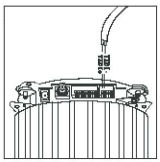


● Turn camera body clockwise to tight position

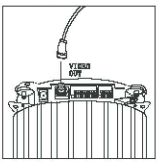


● Tighten the three screws to fix the camera body

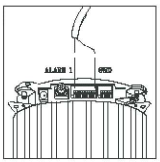
Step 6 Connection



● Connect RS-485 cable

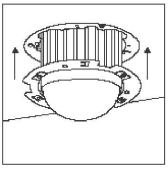


● Connect video signal cable

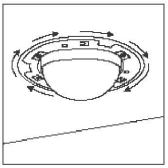


● Connect alarm output cable

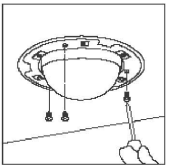
Step 7 Install Camera Body and Decoration Ring



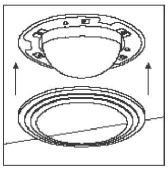
● Put camera body and the fix ring into the hole



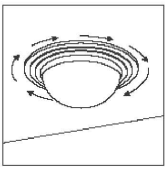
● Turn the camera body clockwise to tight position



● Tighten three black screws

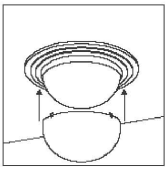


● Put on decoration ring

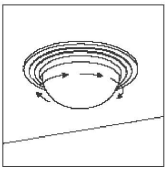


● Turn the ring clockwise to tight position

Step 8 Install The Dome Cover



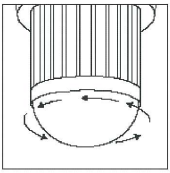
● Attach dome cover to camera body



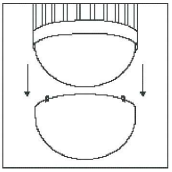
● Turn the dome cover clockwise to tight position

3-4 Attached Mounting (Fixed Ceiling)

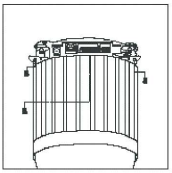
Step 1 Fix The Base



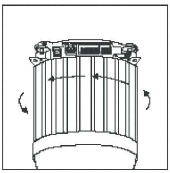
● Turn the dome cover anti-clockwise



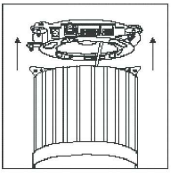
● Separate the dome cover from camera



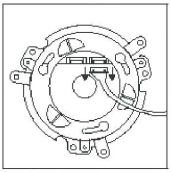
● Untighten the three screws from base



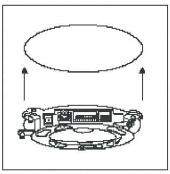
● Turn the camera cover anti-clockwise



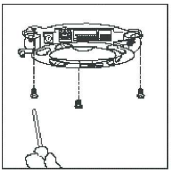
● Separate the camera body to the base



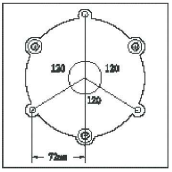
● Unplug the connection cable



● Attach base to ceiling

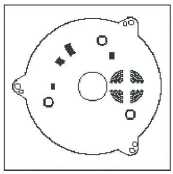


● Tighten the three tapping screws into the ceiling



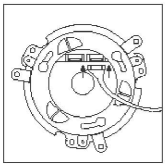
● Base size and screw location

Step 2 Camera Setting

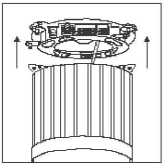


Setting Dome ID
Setting Alarm Mode
Setting Camera Function
Setting Fan Power

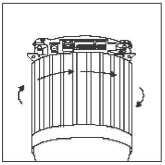
Step 3 Attach Camera Body and Base



● Reconnect the connection cable

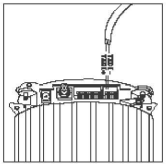


● Attach camera body to base

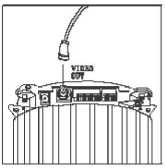


● Turn camera body clockwise to tight position

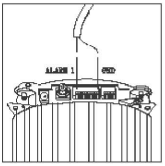
Step 4 Connection



● Connect RS-485 cable

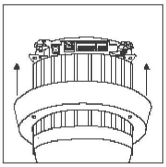


● Connect video signal cable

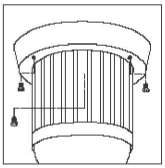


● Connect alarm output cable

Step 5 Install Decoration Ring

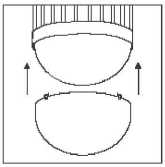


● Put on decoration ring to base

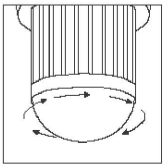


● Tighten the three screws

Step 6 Install Dome Cover

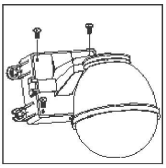


● Put on dome cover to camera body

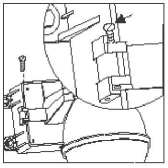


● Turn dome cover clockwise to tight position

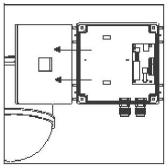
Step 1 Separate PSU and Bracket



● Untighten the screws from PSU box



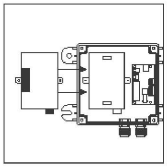
● Untighten and pull out the bolt from the hinge



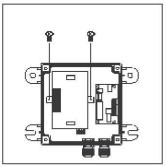
● Separate the housing and PSU box

Step 2 Install Power Supply Unit

1.1 When use 24Vac power source:

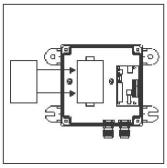


● Put the PSU into the box

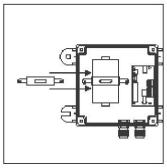


● Tighten 2 screws to fix the PSU

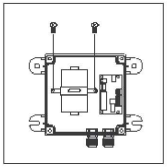
1.2 When use 90 ~ 260Vac power source:



● Put PSU into the box

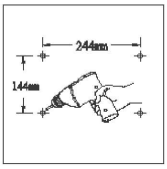


● Put the clamp on PSU

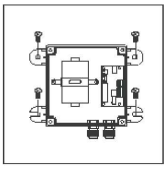


● Tighten 2 screws to fix the PSU

Step 3 Install the Power Box

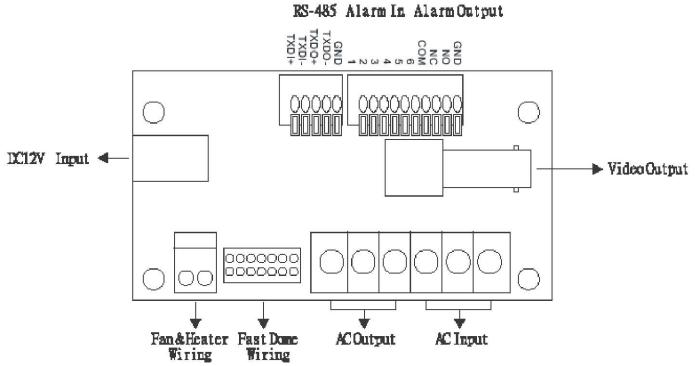


● Drill 4 holes on desired locations

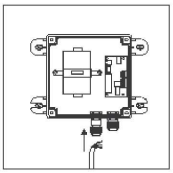


● Tighten 4 screws to fix the power box. (These four screws are not supplied. User must prepare their own screws.)

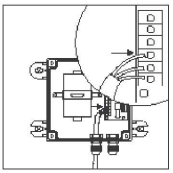
Step 4 Connection



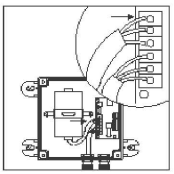
4.1 Connect AC / DC cables:



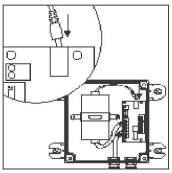
● Untighten the left knob, put the AC power cable through the hole and tighten the knob



● Connect the AC power cable to AC Input jack

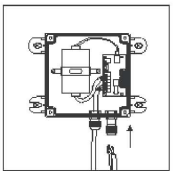


● Connect the AC power cable(below) to AC Output jack

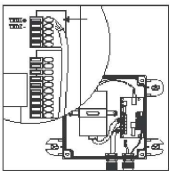


● Connect the DC power cable(above) to DC Input jack

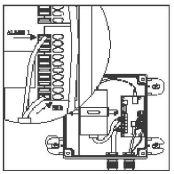
4.2 Connect Alarm, telemetry control (RS-485) and Video cables:



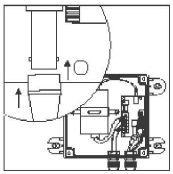
● Untighten the right knob, put the Alarm, RS-485 and video cables through the hole and tighten the knob



● Connect the telemetry control (RS-485) to RS-485 Input (TXDI+,TXDI-)

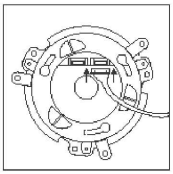


● Connect the Alarm input cable to Alarm Input (Alarm 1 & GND)

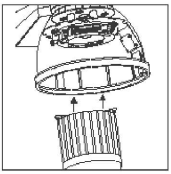


● Connect the video cable to output jack

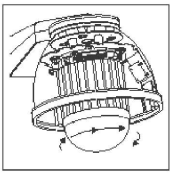
Step 7 Attach Camera Body and Base



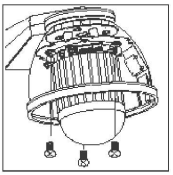
● Reconnect the connection cable



● Attach camera body to base

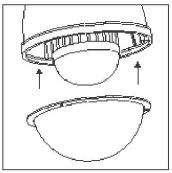


● Turn camera body clockwise to high position

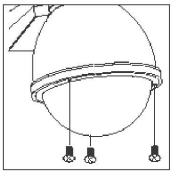


● Tighten the three screws to fix the camera body

Step 8 Install The Dome Cover and Housing Cover



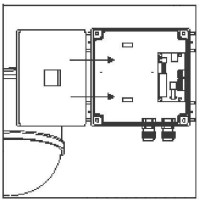
● Attach the cover to housing



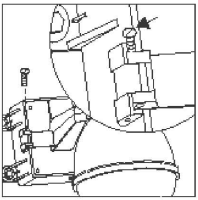
● Tighten the 3 screws to fix the cover

3-5 Pendant Mounting (External Housing)

Step 9 Attach PSU and Bracket

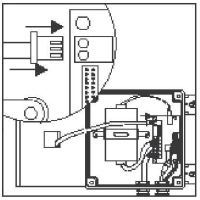


● Attach the housing back to PSU box

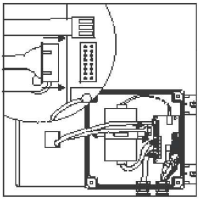


● Insert the bolt into the hinge and tighten

Step 10 Connection



● Connect the fan & heater cable to pin jack

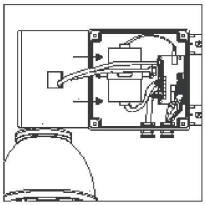


● Connect the Dome cable to connection jack

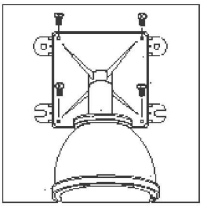
Note: When NETCOMM NS4540 is installed inside outdoor housing, please don't attach dome cover; doing so may affect camera performance.

Step 11 Install The Power Box, Bracket and Housing

PIH-510H

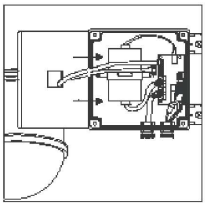


● Attach the bracket and housing to the box

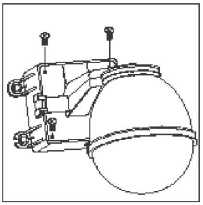


● Tighten the 4 screws to fix the bracket

PIH-510L



● Attach the bracket and housing to the box



● Tighten the 4 screws to fix the bracket

4. Configuring your Camera

4-1 Preparation before IP Assignment:

Always consult your network administrator before assigning an IP address from your server. Make sure the NETCOMM NS4540 is powered on and correctly connected to the network. Obtain an IP address not used yet from your network administrator.

MAC Address: Each NETCOMM NS4540 has a unique Ethernet address (MAC address) shown on the bottom of the NETCOMM NS4540 as the serial number (S/N) with 12 digits (e.g. 000429-XXXXXX).

4-2 Assign IP Address by ARP Command

Note before IP assignment:

- Make sure the NETCOMM NS4540 is powered on and connected to the network correctly.
- Obtain a unique IP address from your network administrator.
- Each NETCOMM NS4540 has a unique Ethernet address (MAC address), which is recorded as a 12 digit serial number labeled at the base of NETCOMM NS4540 (e.g. 000429xxxxxx).
- Following examples use a PC with an IP address 192.168.0.1, the NETCOMM NS4540 will be given an IP address 192.168.0.200 whose MAC address is 000429000150. Always consult your network administrator before assigning an IP address.
- The IP address assigned to the NETCOMM NS4540 shall be the same IP domain (presented as same subnet mask) as the PC IP address. In our case, a PC IP address is 192.168.0.1 and the NETCOMM NS4540 is 192.168.0.200, so the subnet mask shall be 255.255.255.0. If a PC subnet mask is 255.255.255.128 or higher, then the domain can't cover 192.168.0.200, so the settings will not take effective.
- For speedy install and easy setting of the IP Address, NETCOMM Limited provides an IP Installer Wizard for you. Please install the application and see the user's manual for detailed description and usage.

1. In Windows, open DOS window.

- Enter DOS by <Start?Program?MS-DOS Prompt>

2. Ensure the IP address assigned to NETCOMM NS4540 is not occupied by other Hosts.

- In DOS window, entering <ping 192.168.0.200> shall get "time out" message
- C:\>ping 192.168.0.200

  Pinging 192.168.0.200 with 32 bytes of data:

  Request timed out.

  Request timed out.

  Request timed out.

  Request timed out.

  Ping statistics for 192.168.0.200: Packets: Sent = 4, Received = 0, Lost = 4 (100% loss), Approximate round trip times in milliseconds: Minimum = 0ms, Maximum = 0ms, Average = 0ms C:\>

3. Enter command <arp -s [NETCOMM NS4540 IP Address] [NETCOMM NS4540 MAC Address]

- In DOS, enter "arp -s 192.168.0.200 00-04-29-00-01-50"

4. Enter command <ping -t [NETCOMM NS4540 IP Address]> shall get constant reply after 3~4 timeouts, then press CTRL-C to exit pinging.

- In DOS, enter "ping -t 192.168.0.200"
- C:\>arp -s 192.168.0.200 00-04-29-00-01-50 C:\>ping -t 192.168.0.200 Pinging 192.168.0.200 with 32 bytes of data:

  Request timed out.

  Request timed out.

  Request timed out.

  Reply from 192.168.0.200: bytes=32 time=5ms TTL=255 Reply from 192.168.0.200: bytes=32 time=4ms TTL=255 Reply from 192.168.0.200: bytes=32 time=4ms TTL=255 Reply from 192.168.0.200: bytes=32 time=4ms TTL=255 Ping statistics for 192.168.0.200: Packets: Sent = 7, Received = 4, Lost = 3 (42% loss), Approximate round trip times in milliseconds: Minimum = 4ms, Maximum = 5ms, Average = 2ms Control-C

  C:\>

- Enter "http://192.168.0.200" in Location/Address field of Internet Explore, then the Internet live video can be opened.

5. Complete settings and verify the installation. Then, open your web browser (e.g. Internet Explore) and enter the IP address in the Location/Address field. Consequently, the NETCOMM NS4540 video home page will be opened.

4-3 Assign IP by IP Installer

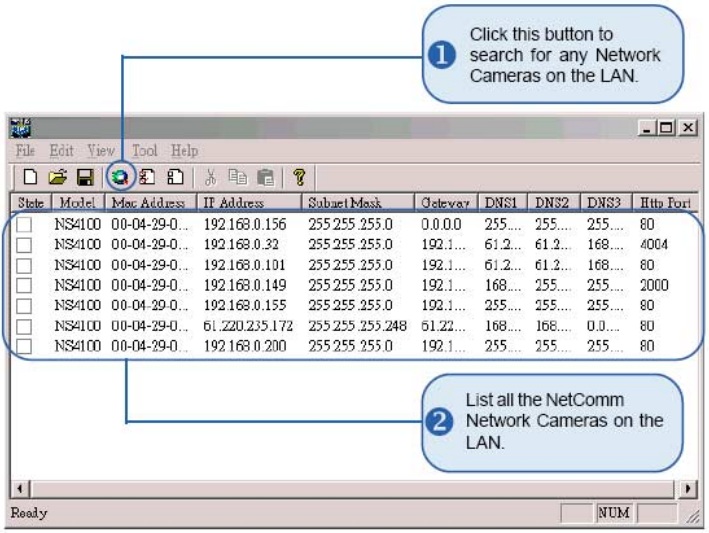
NETCOMM IP Installer is a Windows 98/ME/NT/2000 program. It is the software application that proves an easier way for the setting of IP address and network configuration of NETCOMM 's NDC. By using this tool, you can easily set multiple NETCOMM NS4540s at the same time with the batch setting function. By utilizing the IP Installer, the setting process is largely simplified and the setting time is effectively shortened. Moreover, IP installer can not only save all the configurations of NETCOMM NS4540 as a backup, but also restore the previous configurations of NETCOMM NS4540

4-3-1 Execute IP Installer

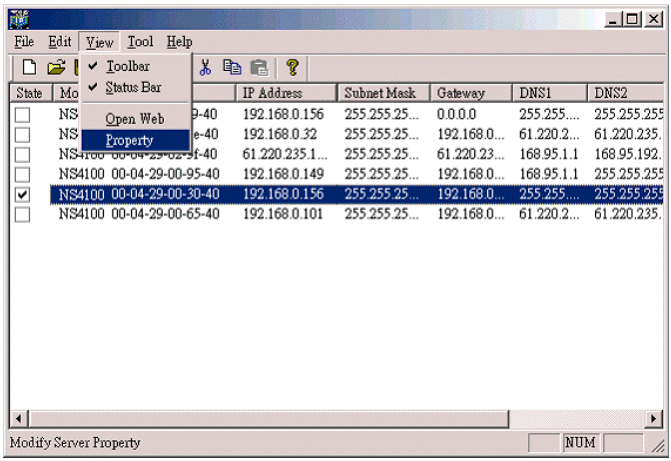
Double click the mouse left button on the IP Installer icon.

IPInstaller.exe

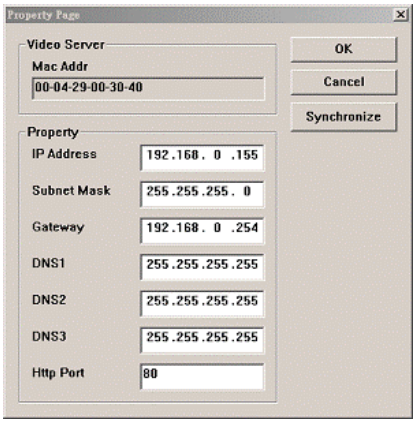
4-3-2 The NETCOMM IP Installer form is displayed on the screen.



4-3-3 Assign an IP Address to NETCOMM NS4540

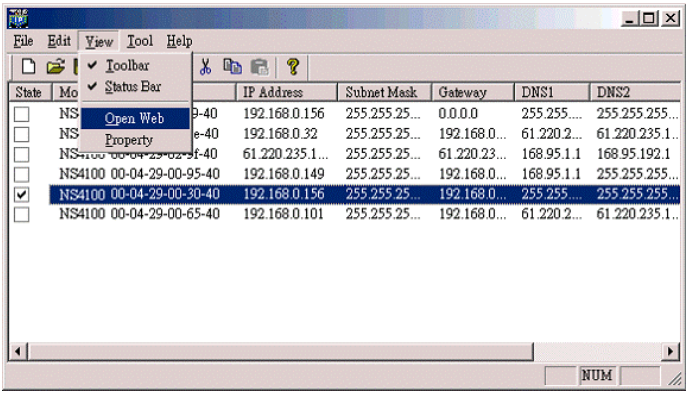


Select the MAC Address of your NETCOMM NS4540 in the list. The MAC Address is identical to the unit's S/N (Serial Number). And click the menu bar View/Property to open the Property Page for the selected item. After filling in the properties, click the OK button to submit the settings for the unit and the settings will be activated immediately.



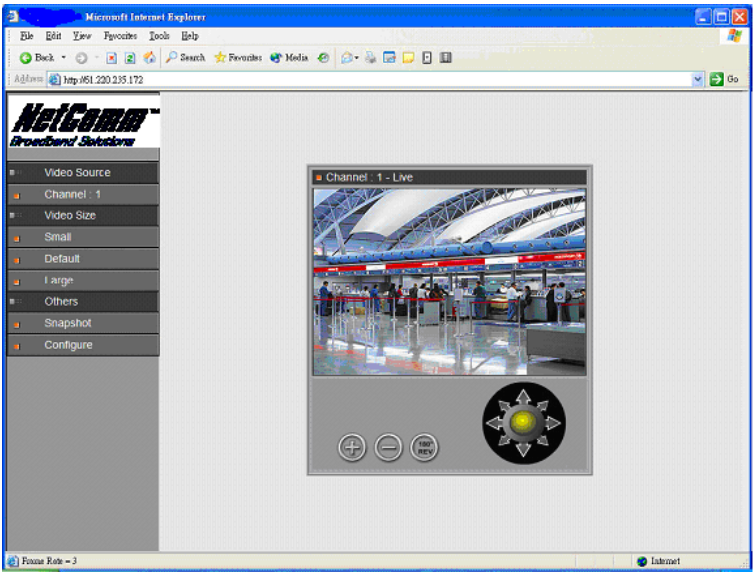
4-4 Verify the IP Address and Open the Home Page

To access the Home Page of the selected unit, run the View/Open Web on the menu bar. If you find your browser is opened and automatically connected to the NETCOMM NS4540 Home Page, it means you've assigned an IP Address to the unit successfully. Now you can close the IP Installer and start to use your NETCOMM NS4540.



4-5 Verify and Complete the Installation from Your Browser

Start your browser and enter the IP Address of your NETCOMM NS4540 in the Address field.



The NETCOMM NS4540 can support Microsoft Internet Explorer and Netscape. But the voice feature can only be run under Microsoft Internet Explorer.

When browsing the Home Page the first time with Microsoft Internet Explorer, you must temporarily lower your security settings to perform a one-time-only installation of NETCOMM 's

ActiveX component onto your workstation, as described below.

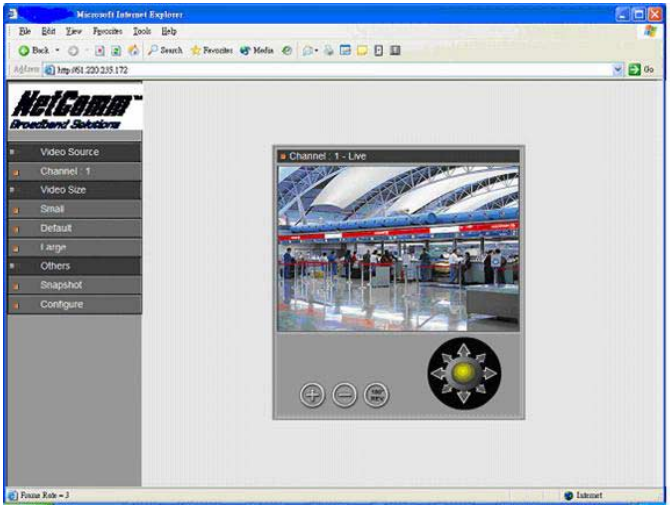
- From the Tools menu, select Internet Options
- Click the Security tab and make note of your current security settings
- Set the security level to Low and click OK
- Type the Internet Address or Host Name of your NETCOMM NS4540 into the Address field
- A dialog asking if you want to install wcp10.cab will appear. Click yes to start the installation
- Once the ActiveX installation is complete, return the security settings to their original value, as noted above

To continue the configuration of your own application, click the configure button in the top left corner of this window.

5. NETCOMM NS4540 Homepages' Usage Overview

5-1 To Browse NETCOMM NS4540 Live Video From Homepage

Start your Web browser and enter the URL?e.g.,"http://61.220.235.172"? in the Address field. The Home page of the NETCOMM NS4540 is now displayed:



- Video Size - You can adjust the video size and appearance on the screen with the following sizes.

Video Size	NTST Video	PAL Video
Small (QCIF)	176 x 112	176 x 144
Default (CIF)	352 x 240	352 x 288
Large (FULL)	704 x 480	704 x 576

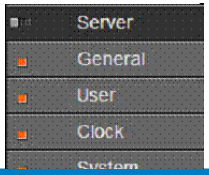
Note: PAL (50Hz) is the Australian standard.

- Click **Snapshot:** to take a picture from the viewing video.
- Click **Configure:** to access the Configuration pages of NETCOMM NS4540.
- Click (Zoom In) to see the near view.
- Click (Zoom Out) to see the far view.
- Click **180° Revolve** to turn camera 180 degree.
- Drag **Joystick** the Joystick to control the pan and Tilt degree of the NETCOMM NS4540.

5-2 Configuration Page

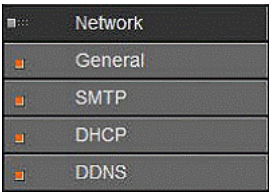
The Configurations of the NETCOMM NS4540 are now presented as links in the margin of the Configuration Page. Simply click the relevant link for the settings you want to configure.

Server Configurations



Functions	Description
General	Set various information about the server name and the language type, etc.
User	Create and delete users and passwords.
Clock	Set the product Date and Time.
System	Provide commands for resetting to the factory default settings, restarting the system, and saving configurations to flash memory for permanently stock.

Network Configurations



Functions	Description
General	Assign an IP Address and configure the relevant network parameters to the server.
SMTP	SMTP (Simple Mail Transfer Protocol) is a protocol that lets administrators to assign a e-mail server which support SMTP for sending e-mail. Including User name and Password authorization function.
DHCP	DHCP (Dynamic Host Configuration Protocol) is a protocol that lets network administrators centrally manage and automate the assignment of Internet Protocol (IP) addresses in an organization's network.
DDNS	The NetComm DDNS (Dynamic Domain Name Service) is used to access NETCOMM NS4540 with an easy memorized name such as http://demo.ddns.NetComm .com instead of http://61.220.235.172.

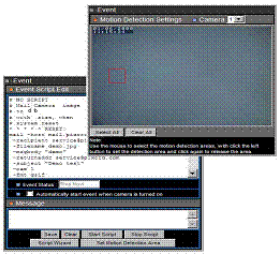
I/O Configurations

Functions	Description
GPIO	General Purpose Input / Output. These are for event triggers and actions
PTZ Device	To control the PTZ device and set the preset points.

Video Configurations

Functions	Description
Time Stamp	Show time and text on the video.
Quality	Adjust the video quality and compression level.

Event Configurations

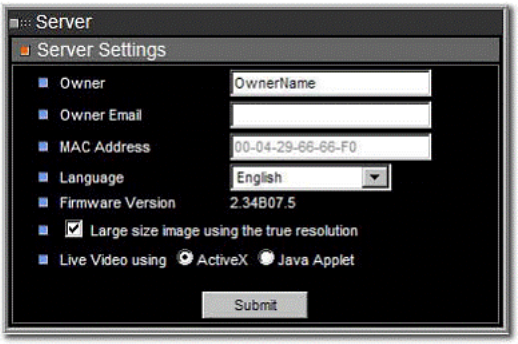


Functions	Description
Motion	Create and enable in-picture motion detection windows. These are used to trigger alarms whenever significant movement occurs in the detection windows.
Script Edit	The Script Editor offers advanced administrators and developers with an even greater level of flexibility for customizing the application specifically to meet their user needs. Using the on-line help as a reference, advanced users follow the instructions below to quickly develop programming scripts for time and/or alarm-triggered events.

6. NETCOMM NS4540 Configurations Setting

6-1. Server Configuration

6-1-1 Server General Settings



Owner: Specify server owner.

Owner Email: IF Return mail address when using SMTP mail delivery is not specified correctly, some security SMTP servers may reject the delivery of this mail.

MAC Address: Display MAC addresses information for this NETCOMM NS4540. It's read only.

Firmware Version: Display firmware version information.

Language: Alternative language option. User may change the language of web contents for different applications.

Large size image using the true resolution: You can set the Large image to use an interlaced image, or not.

Live video using: You can select ActiveX for better performance in MS Internet Explorer, or select Java Applet for more browsers compatibility.

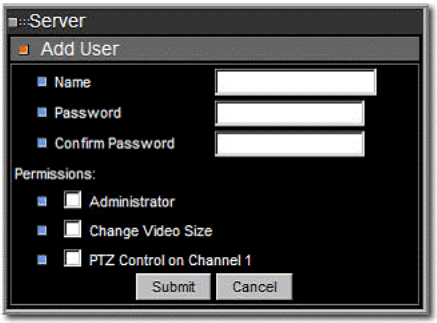
6-1-2 User Settings

6-1-2-1 NETCOMM -NS4540 provides 3- layer user security control as detailed below

- "Open for All" is a factory default when no user enters in User Configuration, it allows any user over the Internet to monitor and configure the NETCOMM NS4540.

- "Restricted User" is the user in User Configuration without administration permission. The user can be configured to have limited permission to see video, for example, "capable of changing video size, etc".
- "Administrator User" is the user in User Configuration with administration permission. The user has all permission to operate the NETCOMM NS4540, such as managing, configuring, and upgrading the software.

6-1-2-2 Add New User



- **Name:** New user name to login
- **Password:** Password for above user
- **Confirm Password:** Type again to confirm password
- **Permission to:** Indicates above user has any permission
- **Administration:** If no, then user can't enter administration page.

Note: that the first user shall set and obtain administration privileges; otherwise, he/she will not be able to access the administration page any more. If this occurs, he/she must use the emergency factory default to reset all users.

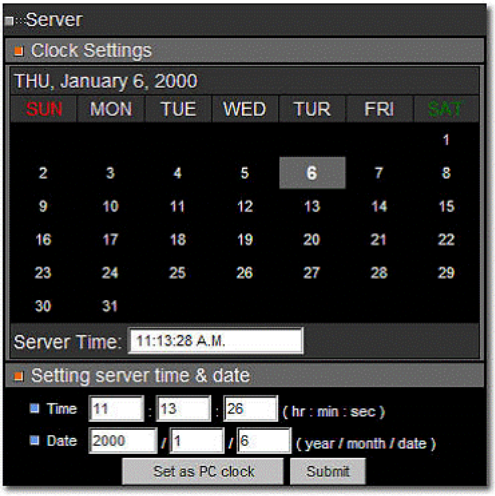
Change Video Size: If no, only CIF size is allowed.

PTZ Control on Channel 1: Permissions to do PTZ control.

- Submit to add above new user into list
- Cancel to abort above operation

When entering "submit" for the first time, the NETCOMM NS4540 will ask for a new administrator to login in. Once the user has been entered in list, you could choose users in list to make modifications (update), or remove specified users. Click "Save Changes" button if you have changed existing data in the NETCOMM NS4540 before power off.

6-1-3 Clock Setting

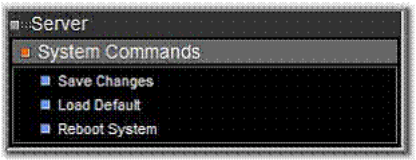


The built-in real-time clock of NETCOMM NS4540 provides accurate date/time for the system even when the power is off. For different time zones or long periods of operation, you may need to adjust the clock --- simply enter Time and Date information then click Submit.

Click "Set as PC clock" button to set the date/time of the NETCOMM NS4540 as your PC's.

Click "Save Changes" button to save data changes in NETCOMM NS4540 before power off.

6-1-4 System Command



Load Default: The Load Default retrieves all except network setting.

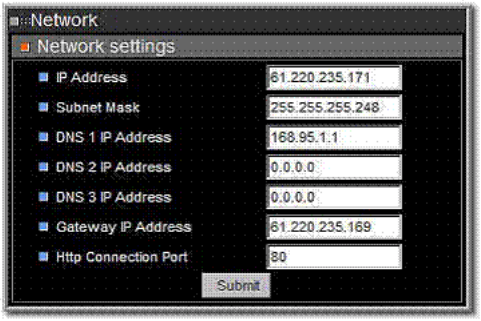
Note: The factory default just recovers the working settings but it is not saved to permanent memory (the system will revert to previous setting after re-boot). To change the boot settings, you must set "Save Changes".

Save Changes: Save the working setting to permanent memory that will retrieve after reboot.

Reboot System: Forces the NETCOMM NS4540 to restart.

6-2 Network Setting

6-2-1 Network General Settings



IP Address: NETCOMM NS4540 IP address

Subnet Mask: Subnet mask of your LAN. Note that the IP Address above and Gateway IP Address below should be in the same subnet.

DNS IP Address: Domain name server information is to allow NETCOMM NS4540 to contact an external server with mnemonic domain name (e.g. ftp.NETCOMM.com) instead of numeric IP address (e.g. 168.95.1.1).

Gateway IP Address: NetComm NS4540 traffic to Internet should go through Gateway, if no setting is present, only Intranet (LAN) can be accessed.

HTTP Connection Port: Specify the HTTP web server listen port for client (browser) connection. Default uses port 80 (HTTP standard port), valid range from 0~65535.

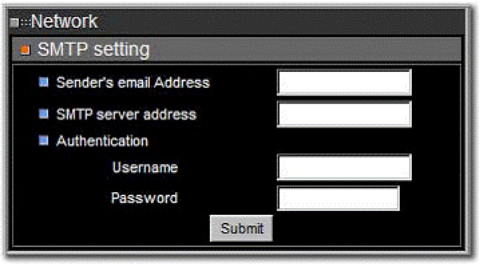
Note: Before changing the listen port, user must add a port directive ":" in browser URL in order to get a correct connection. (i.e. http://⟨IP⟩:⟨Port⟩ , e.g. http://192.168.0.200:8000 to access the NetComm NS4540with IP 192.168.0.200 and port with 8000).

These features enable the user to use NETCOMM NS4540 behind a NAT firewall or IP Sharing device which could access up to 65536 NETCOMM NS4540 with one IP Address.

The factory default won't change the IP Address and Port setting. Once forgetting the specified port of your NETCOMM NS4540, you must use ARP & Ping setting to restore the port setting back to 80.

Click "Submit" button, then the NetComm NS4540 will automatically store the setting and reboot system (within 5 seconds to complete boot sequence) to make the setting effective.

6-2-2 SMTP Settings

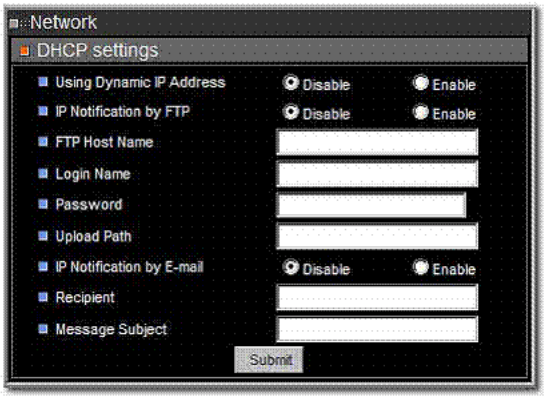


Sender's Email Address: Your E-mail address.

SMTP Server Address: SMTP server IP address.

Authentication: If the SMTP Server has enabled authentication function. You have to fill in the User Name and Password to pass through the authentication.

6-2-3 DHCP Settings



DHCP Settings: If there is a DHCP server installed on your LAN, you can enable DHCP to automatically obtain network settings such as IP address, subnet mask, default gateway, and DNS servers. Because the assigned IP address can be dynamically changed every time it obtains an address from the DHCP server, we provide a method called IP Notification to notify users which IP address has been acquired.

IP Notification by FTP: If an FTP server is installed on your network, you can enable this option to obtain the newly assigned IP address of your NETCOMM NS4540. A HTML file named NewIP_xxxxxx.htm will appear under the upload path for you to link to NETCOMM NS4540, where xxxxxx is the last six digits of the serial number.

FTP Host Name: FTP server address

Login Name: Name of your FTP account

Password: Password used to log in to your FTP account

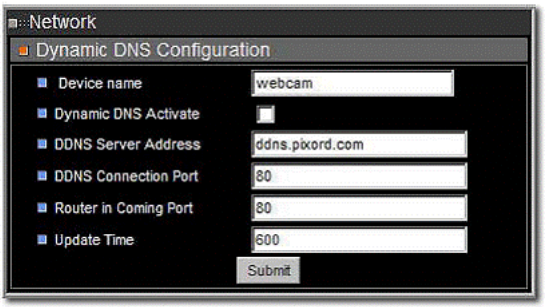
Upload Path: Path to put the file.

IP Notification by E-mail: With this option enabled, your NETCOMM NS4540 will send E-mail to you as soon as it obtains the IP address from the DHCP server.

Recipient: Your E-mail address.

Message subject: Subject of this E-mail.

6-2-4 DDNS Setting



The DDNS (Dynamic Domain Name Service) is used when users want to access NETCOMM NS4540 with an easy memorized name such as http://demo.ddns.NetComm .com instead of http://61.220.235.172. This service could be useful when NETCOMM NS4540 is located behind a Dial-up ADSL or IP sharing device, which does not have fix IP address, then it's impossible to reach NETCOMM NS4540 from Internet.

The mechanism of DDNS service is described as below:

When NETCOMM NS4540 enables the DDNS service, it will "register" to NETCOMM DDNS server with its information, such as server name to access, router virtual port number and updated frequency, etc.

Then NETCOMM NS4540 automatically "updates" to NETCOMM DDNS server by a fix frequency, so even when an IP address is changed by the Internet Service Proivder (ISP), the NETCOMM DDNS server still will obtain and update the internal database. Then, once users access from Internet with its register name, e.g. if registering with server name "demo" to DDNS server "ddns.NetComm .com", NETCOMM NS4540 can be accessed by http://demo.ddns.NetComm .com.

Device Name: Specify server name. This name setting also used by NETCOMM DDNS service to recognize each server.

Recipient: Your E-mail address.

Message subject: Subject of this E-mail.

e.g. if configure name as "company.user" to DDNS address "ddns.NetComm .com", then this NETCOMM NS4540 can be accessed by URL http://company.user.ddns.NetComm .com after registering the NETCOMM DDNS server.

Note: The NETCOMM DDNS service is proprietary, which only works with NETCOMM DDNS server and NETCOMM brands o f products.

Dynamic DNS Activate: Click on to activate NETCOMM DDNS service.

Dynamic DNS Address: Specify address of NETCOMM DDNS server, and the default is "ddns.NetComm .com"

Dynamic DNS Port: Specify NETCOMM DDNS server listen port, and the default is "80"

Router Incoming Port: Specify your router listen port for NETCOMM DDNS server to redirect. The router may configure the different port for incoming (Internet request) and outgoing (Intranet request), e.g. it may configure to redirect Internet HTTP (port 80) request to Intranet port 8000, then, in this case, we must configure the "Router Incoming Port" to 80, and inside the NETCOMM NS4540 Network settings should set HTTP port with 8000.

Update Time: Specify the NETCOMM NS4540 updated frequency in seconds, and the default is 600 (10 minutes), this is interval that NETCOMM NS4540 will automatically send an updated packet to NETCOMM DDNS server.

DDNS message: Return messages from remote NETCOMM DDNS server, and some hints may help to diagnostic the reason if register fails.

- DDNS addr. CGI fail: It means that NETCOMM NS4540 can't communicate with Internet world. Make sure your Network Configuration has correct subnet mask and default gateway, and DNS1 setting is correct and reachable.
- Already registered: Another user had registered this name; please change your register name by changing "Server Name".

Example: To setup a NETCOMM NS4540 (IP address 192.168.0.200) behind a dialup ADSL router, and to access by name http://demo.ddns.NetComm .com.

The procedure is as below:

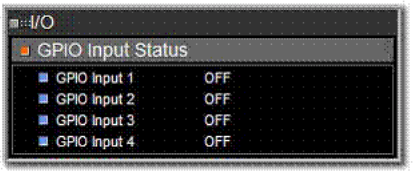
Configure the ADSL router with PPPoE enable; LAN IP, 192.168.0.254; and subnet mask, 255.255.255.0.

- Assign the ADSL router's virtual server with service port 80 to server IP 192.168.0.200
- Configure NETCOMM NS4540 network configuration with IP address 192.168.0.200; subnet 255.255.255.0; DNS1 with valid DNS address such as 168.95.192.1 or 168.95.1.1; gateway IP address with 192.168.0.254 (router's IP); HTTP port with port 80.
- Configure server name.
- Configure DDNS with Activate; Address "ddns.NetComm .com"; DDNS with port 80; Router Incoming port 80; and update time with 600 (10 minutes). Finally, clicks submit.
- If DDNS message success, then enter URL http://demo.ddns.NetComm .com on browser. Consequentially, it will show NETCOMM NS4540's home page.

Click "Save Changes" button if needed for existing data changed in NETCOMM NS4540 before power off.

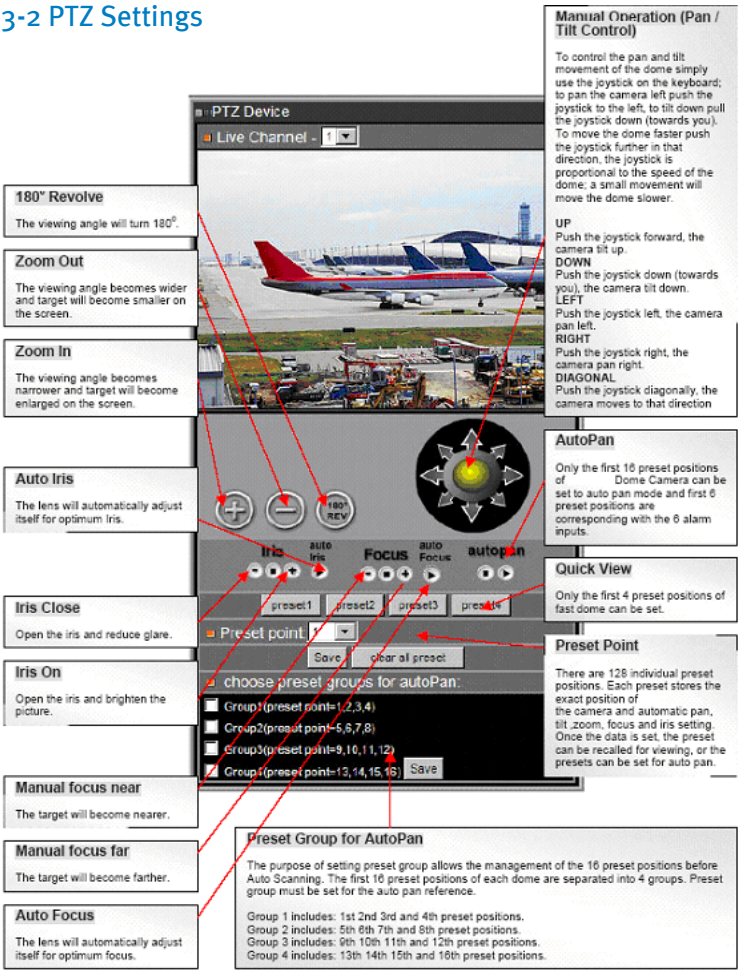
6-3 I / O Configuration

6-3-1 GPIO Input Status



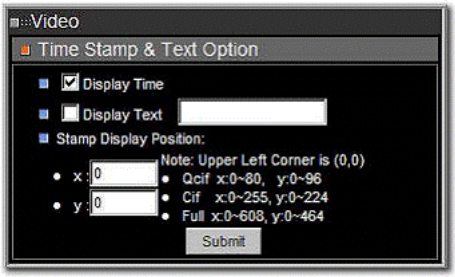
Display the GPIO (General Purpose Input) status. The GPIO Terminal Block / MINI DIN provide control signal input, which includes four GPIO inputs as Relay function.

6-3-2 PTZ Settings



6-4 Video Setting

6-4-1 Time Stamp



Display Time Stamp & Text over the video just click on these check boxes.

Display Time check box: Display the Time Stamp.

Display Text check box: Display text block. Fill in the text string to display. The valid characters are a - z, A - Z, 0 - 9, !, @, #, $, %, &, *, (, and).

To change the location of Time/Text, just fill in the X and Y coordinate.

Note: The maximum display block area (Time + Text) are 12X4 characters. String length more than 12 will feed to next line, and totally 4 lines available. More than 4 lines will strip off.

6-4-2 Video Adjustment

The NETCOMM NS4540 is capable of detecting NTSC/PAL automatically, video signal active/lose, fully automatic (plug & see) and does not need any user configuration.

Quality Adjustments: To adjust video contrast, brightness, hue, color saturation, and quality. Note that the quality level affects compression ratio and file size of video.

NTSC			PAL		
Resolution	File size (kb)	Max fps	Resolution	File size (kb)	Max fps
4CIF (704 x 480)	7 - 160	3	4CIF (704 x 576)	9 - 200	3
CIF (352 x 240)	2 - 50	30	CIF (352 x 288)	2 - 60	25

(The Maximum performance is given for a single user and only one video source in use.)

Frame Delay: To set the delay time between frames. The unit of delay time is 10 microseconds. You can limit the output bandwidth via setting the frame delay to do the flow control of the video stream. When the value is set to 0, it means no limitation on the video stream.

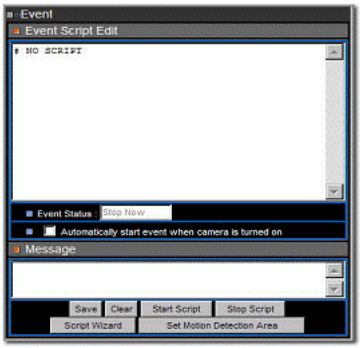
Click "Save Changes" button if needed for existing data changed in NETCOMM NS4540 before power off.

6-5 Event Management

6-5-1 Motion Area Selection

Motion Detection Region Selection: Move the mouse to the regions in video window with white blocks to determine the motion trigger areas. After setting with clicking the left button of the mouse, the selected areas will be turned to red blocks

6-5-2 Event Edit



Application developers wish to have different levels of customization within their own applications. They may build this through the event manager, the event system provides several trigger sources and action types which allow administrators to record the emergency images, such as Motion detection, IO control, FTP or EMAIL to outside world.

It's easy to process --- just fill and submit a simple form.

The NETCOMM NS4540's event manager provides event control through programmable Event Scripts which are the combination of several events. Each event works simultaneously. If one of the trigger conditions in the event script is satisfied, then corresponding action will start to execute accordingly. A comprehensive set of "trigger conditions" and "action commands" allowed to fit in varies of applications without limitation.

Note: The programmable event script has been supported since firmware version 2.0. All models of the NETCOMM Internet Video Server, Network Camera and the Dome Camera are supported.

To start the event manager, simply click Event icon, then event frame will pop up as below:

Upper edit window, middle status box, lower message window, and button control icons mainly separate the event frame.

There are two ways to enter the event script. One is to use "Script Wizard" which just follows the procedure to fill up some items. And, it will generate and append new script code to edit window. The other one is to edit the form manually, which is for experienced users that want to deeply control the functionalities of event operation. Please refer to "Event Script Programmers Guide" for full details syntax and options description.

Event Script Edit: Text window to enter event script manually.

Event Status: Indicate the event status, "Stop Now" or "Start Now".

Message: A window to show the results when below command icon pressed --- normally will show "OK", "Parsing", "Fail", Or "Err String" which indicates the syntax error of parsing, and starts from the error position in the script.

Save Script: Command to save and parse current scripts in the "Event Script Edit" window. If any syntax errors are detected, the error message, indicating the starting position of syntax error, will be shown in the "Message" window.

Event Auto Start when Power On: The flag is to set the event script auto start-up when the system is powered on.

Note: Any changes in "Event Script Edit" window you must "Save Script" before "Start Script"; otherwise, the new changes will be lost and will not take effective. Also the changes won't be saved into permanent memory unless you click the "Save Changes" button in the main Administration panel.

Clear: Command to clean up "Event Script Edit" window.

Start Script: Command to start the script execution.

Stop Script: Command to stop the script execution.

Script Wizard: Command to start the script wizard. It helps user to make simple script automatically by wizard, but the wizard supports only partial trigger and action commands. To fully leverage the complete functionalities of event script, please refer to "Event Script Programmers Guide".

Set Motion Detection Area: In order to activate the motion detection, you must choose the detection area and start the motion detection script manually or by wizard.

NETCOMM NS4540 Surveillance System is suitable for a wide range of surveillance applications. The system can be as single NETCOMM NS4540 with one keyboard or encompassing as 64 domes with comprehensive matrix switching, PC control and even Digital Video Recording.

Such flexibility means future expansion is easily facilitated. For more details about this option please contact NetComm .

Appendix A - Specifications

Operational

Manual Pan/ Tilt Speed	0.18~ 180 /sec (8 stages)
Preset Position Pan/ Tilt Speed	1 ~255 /sec
Preset Position Dwell Time	1 ~ 255 /secretary
Recall Preset Position Pan/ Tilt Speed	360 /sec
180 Instant Flip Rotation Speed	360 /sec
Pan Rotation	360 Continuous
Tilt Rotation	-5 ? ~ +95
Pan/ Tilt Accuracy	±0.25
Preset Position	128 preset positions (memory)
Preset Group	4 Group (Corresponding with first 16 presets)
Address Setting	1 ~ 64 ID setting

Camera

Image Device	¼-Inch Interline Transfer CCD
Horizontal & Vertical Pixel	NTSC (811x508) PAL (795x596)
	NTSC (768x494) PAL(752x582)
Scanning System	2:1 Interlace
Horizontal Resolution	17X / 22X : 480 TV Lines
	25X : 570 TV Lines (Monochrome)
	480 TV Lines (Color)
Minimum Illumination	17X:0.3 Lux at F1.4
	22X:0.3 Lux at F1.6
	25X:0.01 Lux at F1.6 (Monochrome)
	0.1 Lux at F1.6 (Color)
S/ N Ration	>50dB (AGC OFF)
Synchronization	Internal
Horizontal & Vertical Synchronization	NTSC (15.734KHz/60Hz)
	PAL (15.625KHz/50Hz)
Auto Gain Control	ON (20dB) / OFF (8dB)
	Low (8dB) / Medium (22dB) / High (36dB)
Back Light Compensation	ON (Background Adjustable) / OFF
Back Light Compensation Zone	17X / 22X:
Sensitivity Up	25X : Top / Button / Left / Right / Center
	25X : On / Off / Auto

White Balance	.17X / 22X : Auto / Outdoor / Indoor 25X : 2 Auto mode / Outdoor / Indoor
Video Output	CVBS 1.0Vpp 75?

Optical Lens

22X Lens Focal Length	f = 3.9~86mm
22X Lens Aperture Max	F1.6 (wide) ~ F3.6 (telephoto)
22X Horizontal View Angle	50.9 (wide) / 2.4 (telephoto)
Focus Control	22X : Auto / Manual
Iris Control	22X : Auto / Manual
Zoom In/ Out	Manual Control
Zoom In/ Out Accuracy	.±5%

Electrical

Power Supply	AC 24V or AC 90V ~ AC260V (Option)
Input Voltage	DC12V
Power Consumption	18W
Control Interface	RS-485 (1 Input/ 1 Output)
RS-485 Voltage	5.6V
Alarm Input	6 Inputs (Pull up)
Alarm Input Voltage	5.6V
Alarm Output	1 Output (NC or NO mode)
Alarm Output Voltage	0.5A 120Vac/1A 24Vdc
Alarm Response Mode	Lock or Release Mode

Environmental

Operation Temperature	-5?~+50?
Operation Humidity	0%~90%

Mechanical

Height	208mm(8.3")
Diameter	145mm(5.6")
Weight (fast Dome Alone)	2.5Kg
Weight (With External Housing)	5Kg

Appendix B - Upgrading the Software

NETCOMM NS4540 software is contained in Flash Memory, a silicon chip allows it to be erased and re-written. It provides an easy way to update the software without changing any parts; just simply load the newest software from the network.

The following procedures are to update the software:

Check software version

Enter URL "http://<NETCOMM NS4540 IP address>/ver" in your web browser, which will show you the software version.

Example:

enter "http://192.168.0.200/ver" in Microsoft IE5 URL location, you will see the software version--" Software Version=1.11 Revision 0905.1641 ", which indicates the currently software version is 1.11.

Obtain the software (flash.bin)

The latest version of the NETCOMM NS4540 software is free of charge from NETCOMM or your local distributor.

Upgrade procedure via FTP

1. Download the newest software and unzip it into your local Driver, for example "C:\temp". Then, confirm the "flash.bin" file exists in this directory.
2. Remove all event settings and Reset the NETCOMM NS4540:

   You have two ways to remove the event scripts. One is to choose "Clear" and to use "Save" icon on "Event Script Edit" page to set the event script to empty. The other is to click the "Load Default" icon in Server / System page to reset all settings; however, it will not only delete events, but also all other settings. Then click the "Reboot System" to restart the NETCOMM NS4540 or enter CGI command URL

   "http://<NETCOMM NS4540 IP address>/control?reboot=1" in your web browser.

   Caution: You must remove all events and reboot the NETCOMM NS4540 before doing the following procedures; otherwise, some occasional internal conflicts may endanger the Flash devices.
3. Start the FTP session and log in to the NETCOMM NS4540

   For example, in our case for Windows98:

   Enter DOS by "start->Program->MS-DOS Prompt"

   Change to the directory where the latest flash.bin exist.

   Start ftp session by enter "ftp <NETCOMM NS4540 IP Address>

   Enter "root" as USERNAME, "pass" as PASSWORD if no user in User List record. In case any user list exists, you will have to use your administrator's USERNAME and PASSWORD to login
4. Set FTP to binary mode using the command "bin".

In FTP session window, Enter "bin"

5. Upload the software into NETCOMM NS4540 by FTP "put" command.

   In FTP session window, enter "put flash.bin"

   In FTP session window, enter "bye" to quit FTP session.

6. FTP session may freeze for around 1 minute to transfer and automatically upgrade the software. During that time, ping the NETCOMM NS4540 until get a constant reply, which means system had completed upgrading and rebooting, then open the browser to verify the software version been updated.

Note: If FTP session quits immediately after being issued with a command, you should continue pinging the NETCOMM NS4540 instantly. If NETCOMM NS4540 replies to the ping command right after pinging, it means NETCOMM NS4540 may not enter the self-programming stage to verify the software version. If not updated, then you should reboot NETCOMM NS4540 and back to step 3 to try again

C:\temp>ftp 192.168.0.200 Connected to 192.168.0.200. 220 192.168.0.200 NETCOMM FTP server (ARM_BE - V3.0.H) ready. User (192.168.0.200:(none)): root 331 Password required for root. Password: <=enter pass as default 230 User root logged in. ftp> bin 200 Type set to I. ftp> put flash.bin 200 PORT command successful. 150 Opening BINARY mode data connection for flash.bin 226 Transfer complete. ftp: 2097152 bytes sent in 10.11Seconds 207.43Kbytes/sec. ftp> bye

Reply from 192.168.0.200: bytes=32 time=1ms TTL=255 Reply from 192.168.0.200: bytes=32 time<10ms TTL=255 Reply from 192.168.0.200: bytes=32 time<10ms TTL=255 Reply from 192.168.0.200: bytes=32 time<10ms TTL=255 Ping statistics for 192.168.0.200: Packets: Sent = 13, Received = 5, Lost = 8 (61% loss), Approximate round trip times in milliseconds: Minimum = 0ms, Maximum = 2ms, Average = 0ms Control-C C:\temp> C:\> 221 Goodbye. <=Quit ftp session immediately <=if the window is frozen, please open another dos session

C:\temp>ping -t 192.168.0.200

Pinging 192.168.0.200 with 32 bytes of data:

Request timed out.

Request timed out.

Request timed out.

Request timed out.

Request timed out.

Request timed out.

Request timed out.

Request timed out.

Reply from 192.168.0.200: bytes=32 time=2ms TTL=255

Note: Flash products can become damaged if the updating operation is not performed correctly. So please follow above procedures very carefully.

Appendix C - Update custom web pages

NETCOMM NS4540 has a built-in web server, so the web contents are contained in Flash Memory, the same as software parts, allowing erasure and re-write. It provides an easy way to update the web pages --- just simply load and issue command from network (FTP and Telnet).

Caution: The update of content page is very sensitive to system operation; therefore, incorrect operation may cause system fail to response to any request. The following operations provided here are only for experienced system integrators. Remember to always consult to your distributor or dealer in advance to update the content.

The following procedures are to update the web page:

1) Clean up system

Before updating the pages, make the NETCOMM NS4540 back to factory default stage --- click "Load Default" button, click "Save Changes" button, and then click "Reboot System" button in configuration page. Keep the NETCOMM NS4540 in an idle state, which stops all video requests from other station.

2) Download complete web pages

For backup purpose, we should download the complete built-in contents before updating. The pages layout is described as below:

1. 3.0.0/WWW: Main video pages including static HTML pages and JAVA applets.
2. 3.0.0/WWW/images: All graphical files.
3. 3.0.0/WWW/lang1: All HTML pages for user defined language 1.
4. 3.0.0/WWW/lang2: All HTML pages for user defined language 2.
5. 3.0.0/Sys: Video bitmap font file (Time Stamp and Text Bitmap)
6. 3.0.0/public: Internal message files.

Note: When you login to the system, the default root directory is 3.0.0/. Do not change any file in 3.0.0/Sys, and 3.0.0/public, because these files are only used internally.

For convenience, some FTP utilities (e.g. CuteFTP, WSFTP) may be useful to download the complete pages.

3) Upload custom web pages

You can use FTP utilities to upload the updated/added contents to their original directory. For example, if you wish to replace the NETCOMM banner logo (logo.jpg) with your custom made image. First, prepare your own image, and then upload to 3.0.0/WWW/images.

Note: Any file upload to NETCOMM NS4540 should be set to "binary" mode in FTP utility; otherwise, the file may be corrupted in NETCOMM NS4540.

4) Verify updated contents

After uploading the custom pages, open browser to verify the correctness of contents. If not correct, modify the pages and return to previous step to upload again.

5) Save the changes to flash

Telnet to the NETCOMM NS4540. And run command "Up -w" to write the complete web pages into flash. The detailed procedures are list as below,

1. Open DOS window
2. Enter "telnet <IP Address of NETCOMM NS4540 >"
3. Enter "root" and "pass" as username and password
4. Enter "Up -w" to start the web content update program. The command is case sensitive. Don't enter the wrong case or you'll get the command not find error message. After processing about 30 seconds, the NETCOMM NS4540 will restart automatically and complete the web content update. Now you can open the browser to see the new web content.

Note: The limitation of overall size of content pages is around 700K Bytes. Any file added/updated plus original downloaded file (~550K Bytes) should not exceed this size; otherwise, some files will be truncated or corrupted. If the corruption of any page happens, you will have to reload the original binary (see Appendix A - Upgrading the Software) in order to recover the corruption.

For example, the NETCOMM NS4540 IP address is 192.168.0.200, then

C:\temp>telnet 192.168.0.200 C:\temp> Telnet session

Open Telnet session Login: root Password:

Enter "pass" as default Welcome to VidSvr on Telnet ... IVS> Up -w Upgrade WWW Pages...

Frozen here, close and open browser After 30 seconds to verify the changes.

Appendix D - Emergency Factory Default

In certain circumstance, to restore the server to initial factory default state may be necessary, normally processed through web page (Miscellaneous Operation). If the user can't get into web page (e.g. Missing of Username and Password information), then he/she could use Emergency Factory Default to restore the factory default.

Procedures as below:

1. Turn the power off
2. Connect GPIO Input 4 to GND with small wire or switch.
3. Turn the power on. When the Status LED starts to blink (orange) twice, and then open the wire or switch that set GPIO Input 4 back to open immediately.
4. Server will restore the factory default and restart.

Note: When status LED starts to blink during power up, if not to set GPIO Input 4 back to open within 3 seconds, server will continue the boot sequence and doesn't retrieve the factory default.

Appendix E - Trouble Shooting

Trouble Shooting

1 No Power

1.1 Check power input connection

1.2 Check fuse on the PCB

1.3 Check connection between camera body and base

2 No Video

2.1 Check camera video output on camera

2.2 Check cable (damaged cable)

2.3 Check video input connection on monitor

2.4 Check 20PIN connection between camera body and base

3 No Telemetry

3.1 Check camera ID switch setting

3.2 Check RS-485 cable IN/OUT connection on camera

3.3 Check RS-485 cable IN/OUT connection on keyboard

3.4 Check if the fast dome is under Auto Pan mode Please deactivate the Auto Pan

3.5 Check if alarm is triggered, Cancel triggered alarm

4 Poor Focusing

4.1 Dusts on dome cover or housing cover. Clean the cover with cotton cloth

Installation Kit

Item	Unit	Type
Power Supply	1	Embedded / Attached
Power Cable	1	Embedded / Attached
M4 x 25 Tapping Screw-flat head	3	Embedded
M4 x 30 Machine Screw-flat head	3	Embedded
M4 x 6 Machine Screw-black	6	Embedded
Screw Nut	3	Embedded
Ceiling Ring	1	Embedded
L Shape Screw Nut	3	Embedded
Fix Ring	1	Embedded
Decoration Ring	1	Embedded
M4 x 25 Tapping Screw-round head	3	Attached
Plastic Screw Nut	3	Attached
Decoration Ring	1	Attached

Appendix F - Registering your NetComm Product

All NetComm Limited ("NetComm") products have a standard 12 month warranty from date of purchase against defects in manufacturing and that the products will operate in accordance with the specifications outlined in the User Guide. However some products have an extended warranty option (please refer to packaging). To be eligible for the extended warranty you must supply the requested warranty information to NetComm within 30 days of the original purchase by registering on-line via the NetComm web site at:

www.netcomm.com.au

Contact Information

If you have any technical difficulties with your product, please do not hesitate to contact NetComm's Customer Support Department.

Email:	support@netcomm.com.au
Fax:	(+612) 9424-2010
Web:	www.netcomm.com.au

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Please note that the images used in this document may vary slightly from those of the actual product. Specifications are accurate at the time of the preparation of this document but are subject to change without notice.

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NetComm reserves the right to change the specifications and operating details of this product and manual without notice and does not warrant that any changes to the specifications or operating details of the product will meet the requirements of the customer or will be able to interoperate, remain compatible or coexist with any other hardware or software the customer uses.

Registration of warranties, either via the NetComm web site or via post is subject to NetComm's privacy policy and procedures. Copies of NetComm's privacy policy and procedures can be obtained from www.netcomm.com.au.

Customer Information

ACA (Australian Communications Authority) requires you to be aware of the following information and warnings in relation to the purchased product:“

(I) This unit shall be connected to the Telecommunication Network through a line cord which meets the requirements of the ACA TSOOS Standard.“

(2) This equipment has been tested and found to comply with the Standards for C-Tick and or A-Tick as set by the ACA. These standards are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio noise and, if not installed and used in accordance with the instructions detailed within this manual, may cause interference to radio communications. However, there is no guarantee that interference will not occur with the installation of this product in your home or office. If this equipment does cause some degree of interference to radio or television reception, which can be determined by turning the equipment off and on, we encourage the user to try to correct the interference by one or more of the following measures:

- Change the direction or relocate the receiving antenna.
- Increase the separation between this equipment and the receiver.
- Connect the equipment to an alternate power outlet on a different power circuit from that to which the receiver/TV is connected.
- Consult an experienced radio/TV technician for help.

(3) The power supply that is provided with this unit is only intended for use with this product. Do not use this power supply with any other product or do not use any other power supply that is not approved for use with this product by NetComm. Failure to do so may cause damage to this product, fire or result in personal injury.

Warranty

Where the Customer (you) is a consumer as defined by any relevant law such as the Trade Practices Act 1974 (Commonwealth) and similar State laws, certain conditions and warranties ("the consumer warranties") cannot be excluded, restricted or modified. You then have the benefit of both the consumer warranties and any other warranty that may be provided by the Company or by the manufacturer of the goods. To the extent permitted by Law, all implied warranties and conditions are excluded.

All NetComm products have a standard 12 months warranty from date of purchase. However some products have an extended warranty option (refer to packaging). To be eligible for the extended warranty you must supply the requested warranty information to NetComm within 30 days of the original purchase by registering on-line via the NetComm web site at www.netcomm.com.au.

To the extent permitted by the consumer warranties, in relation to your product and any other materials provided with the product ("the Goods") the liability of NetComm under the Relevant Acts is limited at the option of NetComm to:

- replace the Goods; or
- repair of the Goods; or
- pay for the cost to replace the Goods; or
- pay for the cost to repair the Goods.

Conditions and exclusions:

The warranty is granted on the following conditions:

1. This warranty extends to the original retail Customer (you) and is not transferable;
2. This warranty does not apply to software programs, batteries, power supplies, cables or other accessories supplied in or with the product;
3. You must comply with all of the terms of any relevant agreement with NetComm and any other reasonable requirements of NetComm including producing such evidence of purchase as NetComm may require;
4. The cost of transporting the product under a claim based on this warranty to and from NetComm's nominated premises is your responsibility; and
5. NetComm does not have any liability or responsibility under this warranty where any cost, loss, injury or damage of any kind, whether direct, indirect, consequential, incidental or otherwise arises out of events beyond NetComm's reasonable control. This includes but is not limited to: acts of God, war, riot, embargoes, acts of civil or military authorities, fire, floods, electricity outages, lightning, power surges, or shortages of materials or labour.
6. You are responsible for the security of your computer and network at all times. Security features may be disabled within the factory default settings. NetComm recommends that you enable these features to enhance your security.

The warranty is void if:

1. You, or someone else, use the product, or attempt to use it, other than as specified by NetComm;
2. The fault or defect in your product is the result of a voltage surge subjected to the product either by the way of power supply or communication line, whether caused by thunder-storm activity or any other cause(s);
3. The fault is the result of accidental damage or damage in transit, including but not limited to liquid spillage;
4. Your product has been used for any purposes other than that for which it is sold, or in any way other than in strict accordance with the user manual supplied;
5. Your product has been repaired or modified or attempted to be repaired or modified, other than by a qualified person at a service center authorised by NetComm; and,
6. The serial number has been defaced or altered in any way or if the serial number plate has been removed.